CSR, Tax Avoidance, and Cost of Debt

Abstract

Theories in management strategy argue that CSR generates economic value either through enhancing corporate performance or through preserving corporate performance. The insurance-like argument of CSR focuses on generating economic values through mitigating the adverse effects of negative events. This paper examines the insurance property of CSR in the context of cost of debt financing and tax avoidance. Specifically, I examine whether tax-avoiding firms with superior CSR performance enjoy a lower cost of debt financing. Using three measures of tax avoidance, two measures of cost of debt, and a measure of CSR based on KLD indicators, I find that firms with higher levels of tax avoidance and a better CSR performance have lower bond spread and superior credit rankings. Additional analysis indicates that tax-avoiding firms reduce their cost of debt mainly through enhancing positive CSR performance than reducing poor CSR activities. Further analysis reveals that firms with higher levels of tax avoidance (i.e. top quartile of tax avoidance) receive greater benefits from participation in CSR activities .These findings provide support for the hypothesis that firms utilize CSR activities to temper adverse effects of risky behaviors such as tax avoidance.

Keywords: corporate social responsibility; tax avoidance; cost of debt.

1. Introduction

Corporate social responsibility (hereafter "CSR") activities and its economic determinants and consequences have been the subjects of much academic research over the past 20 years (see Huang and Watson 2015; Malik 2015; Gray et al. 1995 for general reviews of this literature). In one stream of research, there are two competing arguments as to how tax avoidance and CSR activities are related. One argument is that management's inherent code of good business conduct drives a firm to pay taxes as evidence of the firm's contribution to society. Under this view, firms exhibiting strong CSR activities are expected to pay greater taxes relative to less responsible firms (Caroll 1979, Paine et al. 2005). Alternatively, some propose a trade-off between CSR and tax payment either because they are substitute contributions to society or because firms use CSR participation as an insurance policy to temper the negative perceptions about tax avoidance (Godfrey 2005; Godfrey et al. 2009, Davis et al. 2016). For example, Davis et al. (2016) argue that paying taxes can detract from social welfare by reducing the resources that the company can otherwise use to create economic developments, jobs, and promotes social responsibility activities. Finally, some believe no underlying connection exists between corporate taxes and CSR, and no relationship should be observed between CSR and tax avoidance (Dowling 2014; Friedman 1970; Weisbach 2002).

These different arguments motivate investigations into the relation between CSR and tax avoidance. The results, however, are mixed and at times contradictory. On one hand, some studies find that socially-responsible firms are less likely to avoid taxes (e.g. Hoi et al. 2013; Lanis and Richardson, 2012 and 2015; Hasan et al. 2016). For example, Hoi et al. (2013) find that socially-irresponsible firms generally engage in more aggressive tax strategies. Similarly, Hasan et al. (2017) document that firms headquartered in counties exhibiting higher levels of social capital

incur higher effective cash and GAAP effective tax rates (ETRs). This evidence suggests that firms view tax payments and CSR activities as complements to addressing managements' view of the firms' obligations to society (i.e., managers' views of firms' social obligations drive similar relative contributions of both taxes and CSR activities). On the other hand, Davis, et al. (2016) find that CSR activity levels negatively relate to five-year cash effective tax rates and positively relate to tax lobbying expenditures, which suggests that CSR shirking and tax payment serve as substitutes for one another. This conflicting evidence leaves open the question of how CSR activity and tax avoidance are related. For example, are there circumstances when CSR activities and effective tax rates are complements, and other circumstances where they are substitutes to each other? To address the mixed results in this arena, I examine the extent that the cost of debt affects the trade-off between taxes incurred and CSR activities.

I argue that the relationship between CSR activities and ETRs is likely a function of the costs and benefits of fulfilling each of these "give-backs" to society. Thus, how much a firm engages in CSR activities largely depends on how much the firm is engaged in tax avoidance behavior, and vice versa (Davis et al. 2016). Stakeholder theory argues that stakeholders are heterogeneous in their expectations and the responsibility of managers is not only to maximize shareholders' wealth but also to satisfy other stakeholders' objectives (Freeman 1984). Introducing CSR activities into the stakeholder theory framework, Ullman (1985) argues that the determinants and economic consequences of CSR activities could be different depending on different stakeholder needs. If stakeholder interests prioritize expending resources on both CSR activities and paying taxes, then the two constructs will align and appear as complements to one another. On the other hand, when stakeholders view CSR and taxpaying activities as tradeoffs, then the constructs will be substitutes for one another.

Consider shareholder interests. Prior research indicates that equity-dominant firms value greater CSR participation because it indicates 1) stronger corporate character, 2) greater interactions with society (i.e., a broad range of stakeholders), 3) more customer and employee loyalty, 4) lower risk of incurring previously-externalized costs related to socially irresponsible behavior, 5) more efficient use of firm resources, leaving more resources available to pay debt, and 6) stronger managerial competence as signaled by their ability to effectively integrate CSR activities into firm operations (Oikonomou, Brooks and Pavelin 2014; Attig, El Ghoul, Guedhami, and Suh 2013; Goss and Roberts 2011). Tax avoidance also appears to be valuable to equity investors because it produces substantial cash tax savings that increases expected current cash flows and, hence, reduces the cost of equity capital (Goh et al. 2016). Given this discussion, shareholders are likely to view CSR activities and tax avoidance as complements for one another.

Debtholders are exposed to the risks of tax avoidance but do not benefit from the corresponding rewards of tax savings. This is consistent with prior literature finding that debtholders impose higher costs on tax-avoiding firms because they consider them riskier (Hasan et al. 2014; Shevlin et al. 2013). Debtholders, however, reward socially responsible firms with a lower cost of debt because CSR activities indicate greater stakeholder engagement, producing less chance of costly conflicts with stakeholders, lower firm risk, and efficient resource allocation (Attig et al. 2013; Cooper and Uzun 2015; Goss and Roberts 2011; Oikonomou et al. 2014). Putting CSR performance into a risk management framework, Godfrey et al. (2009) argue that engaging in CSR activities is not just an altruistic behavior but rather a key part of management strategy of companies. Participation in CSR activities sends a not self-interested signal that when received and accepted by external stakeholders, generates a positive attribution or moral capital. Theorists argue that the economic value of CSR activities is derived from the mitigating effect of the moral

capital in the event of negative event (Godfrey 2005).Given this, I argue that firms that engage in aggressive tax avoidance can increase their CSR participation to mitigate the adverse effect of involvement in tax avoidance behavior. This is consistent with the perspective that the economic value of CSR engagement results from the moral capital, derived from CSR, that can be used to temper the negative effects of events such as tax avoidance (Godfrey 2005; Godfrey et al. 2009, Davis et al. 2016).

Prior literature also provides evidence of the insurance application of CSR activities against variety of firm risks. Christensen (2016) examines the deterrence and protection effects of CSR reporting and finds that firms that issue CSR reports are less likely to involve in a high-profile misconduct such as bribery, kickback, and discrimination. He also finds that in the event of a misconduct, firms that have previously disclosed CSR reporting experience a less negative market reaction. Minor and Morgan (2011) argue that firms use CSR activities to protect their reputation from adverse events such as product recalls, and they find evidence to support this view. Col and Patel (2016) study the actions of U.S. multinational firms that open facilities in tax haven countries. They find that firms tend to increase CSR activities after initiating operations in a tax haven country. Col and Patel argue that tax-haven firms protect themselves from negative reputational effect of establishing entities in offshore tax havens. In the same vein, firms could use CSR activities to temper the negative effects of tax avoidance behavior in order to enjoy a lower cost of debt. This is consistent with evidence that firms engaging in accounting practices to influence their earnings also tend to use CSR activities to deflect potential criticism from non-shareholders pertaining to these accounting activities (Prior et al. 2008).

A counter argument based on the shareholder theory posits that firms should engage in socially-responsible activities only when such activities increase shareholder wealth (Friedman

1970). Under this view, resources should be dedicated to CSR activities only when only when they produce positive net present value (Davis et al. 2016). If tax avoidance and CSR both maximize firm value independently of one another, then we expect managers to engage in each activity independently of the other and, therefore, one construct has no impact on the effect of the other construct on credit risk. In other words, tax avoidance (CSR) is unrelated to the relation between CSR (tax avoidance) and credit risk.

I examine five-year GAAP effective tax rates (ETRs) for a sample of U.S. public corporations for which data pertaining to CSR activities is available from the MSCI historical dataset. The CSR index is measured as total strengths minus total concerns (Kim et al. 2012; Hoi et al. 2013; Davis et al. 2016).

GAAP ETR is the primary proxy for tax avoidance because Graham et al. (2014) find that managers care about GAAP ETRs more than they do about Cash ETRs; cash ETRs and the book-tax-difference are employed as alternative measures of tax avoidance. Following Davis et al. (2016), the sample includes only U.S. corporations since tax regulations, and managers' and shareholders' perspectives on CSR activities, could be systematically different from other countries given cultural, institutional and legal differences across countries.

I find that the CSR index moderates the relationship between tax avoidance and cost of debt. The coefficients of the interaction between CSR and tax avoidance is significantly negative which suggests that cost of debt for tax-avoiding firms is lower among firms that are heavily involved with CSR activities. I find similar results using two alternative measures of tax avoidance. Further analysis reveals that the results are mainly driven by participation in positive CSR activities rather than by reducing negative CSR activities. In other words, firms engaged in tax avoidance increase positive CSR activities to alleviate the increased risk of tax avoidance and

enjoy a lower cost of debt, as a result. Additional analysis indicates that firms with higher levels of tax avoidance (i.e. top quartile of tax avoidance) receive a greater benefit from participation in CSR activities. Results support the view that firms increase CSR participation to offset the negative effects of involvement in tax avoidance behavior. This evidence is consistent with the trade-off between corporate tax payments and CSR activities.

My study makes two important contributions to the CSR and tax avoidance literatures. First, I provide evidence on the trade-off between CSR and tax avoidance, and reconcile the mixed results in prior studies that investigate the relationship between CSR and tax avoidance. Second, consistent with risk management theory, I present evidence that firms use CSR activities to hedge risky behaviors and mitigate the negative effects of tax avoidance strategies on firm value (Hanlon and Slemrod 2009).

The reminder of this paper is organized as follows. The second section discusses the background and hypothesis development. Section three describes the research design. In section four findings and results are presented and discussed. Section five concludes the paper.

2. Literature Review and Hypothesis Development

"There is one and only one social responsibility of business--to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud." (Friedman 1970). This shareholder wealth maximization view has been the cornerstone of much research that seeks to explain the causes and effects of CSR activities. Godfrey et al. (2009) argue that CSR activities

can maximize shareholders value either through generating corporate financial performance or protecting it.

The wealth-generating properties of CSR are documented in the literature. Numerous studies examine the effects of CSR activities on corporate performance (e.g. Deng et al. 2013; Porter & Kramer 2002; Saiia et al. 2003; Brammer & Millington 2005) and find positive associations. Dhaliwal et al. (2011) examine the effect of CSR participation on firm's cost of equity capital and find that firms that already have a higher cost of equity initiate superior CSR activities, which in turn results in a significant reduction in the subsequent cost of equity. Cheng et al. (2014) find that firms with superior CSR performance are significantly less financially constrained and this result is more pronounced for firms with better stakeholder engagement and more transparent CSR disclosure. To address endogeneity, Cheng et al. (2014) use various methods including an increase in the number of CSR indicators reported by MSCI, an instrumental variable approach, and a simultaneous equation. Deng et al. (2013) provide evidence that more socially responsible firms make stronger merger and acquisition decisions. Their findings show that acquisitions by high-CSR firms lead to greater announcement-related stock returns for acquiring firms.

From a debt market perspective, the findings are mostly consistent with socially responsible firm incurring lower cost of debt financing. Menz (2010) investigates the relationship between Euro corporate bonds and participation in CSR activities, and finds very weak evidence that the marketable debts of high-CSR firms face greater risk premia. Similarly, Goss and Roberts (2011) examine the link between CSR and bank loan interest rates, and find that firms with poor social performance pay higher interest rates relative to more socially-responsible firms. Conversely, Oikonomou et al. (2014) examine two indicators of debt risk, the cost of debt and credit ratings, and find that, overall, firms with superior social performance have lower bond yield

spreads and higher bond ratings. Attig et al. (2013) focus on credit ratings and find that more socially-responsible firms enjoy higher credit ratings and that the components of CSR that relate to primary stakeholder management (i.e., community relations, diversity, employee relations, environmental performance, and product characteristics) matter most in explaining creditworthiness.

CSR can also maximize the wealth of shareholders through preserving economic values. A recent theory developed by strategy scholars suggests that CSR activities have an "insurance-like" property that is perceived positively by stakeholders, who then temper their negative judgments and actions towards the firm because of this intangible property (Godfrey 2005; Gardberg and Fombrun 2006; Godfrey et al. 2009). Business activities differently impact various groups of stakeholders (Godfrey et al. 2009; Watson 2015). For example, tax avoiding activities generate values for shareholder but impose additional risk on creditors. . From a risk management perspective, theorists argue that CSR can act as means of mitigating, or protecting the firm against, the adverse consequences of negative events (Godfrey 2005; Gardberg and Fombrun 2006).

Tax avoidance generates cash flows for shareholders by reducing the share of profits paid to tax authorities. Thus, equity investors generally desire tax avoidance since most tax avoidance produces tax benefits with positive net present values (Goh et al. 2016). In other words, taxes saved from tax avoidance come with sufficiently low risk that firm value increases. Consistent with this view, Desai and Dharmapala (2009) find a positive association between tax avoidance and firm value and this relation is more pronounced in the presence of strong corporate governance. Similarly, Drake et al. (2017) find a positive link between Cash ETR and Tobin's *q* and a negative link between tax risk (Cash ETR volatility) and Tobin's *q*. Wilson (2009) investigates the stock returns of firms engaging in corporate tax shelters and finds that positive returns are concentrated

in well governed firms. Finally, in a more recent study Goh et al. (2016) examine the link between tax avoidance and cost of equity capital and, using multiple measures of tax avoidance and cost of equity capital, document a negative and significant association. Despite the empirical findings of the positive association between tax avoidance and firm value, other studies provide evidence of the negative impact of tax avoidance on firm value. For instance, Hanlon and Slemrod (2009) find that the market reacts negatively to news about corporate involvement in tax shelters, and that this effect is more pronounced for the retail sector, which is more prone to potential consumer backlash. Cook et al. (2017) examine the association between tax avoidance and ex ante cost of equity capital and find that ex ante cost of equity capital increases with changes in the investors' expected levels of tax avoidance.

From the perspective of debtholders, however, tax avoidance produces little or no benefit and increases firm risk. Unlike shareholders, debtholders are fixed claimants who generally do not benefit from the excess cash generated from tax avoidance (Hasan et al. 2014). Consistent with this argument, Hasan et al. (2014) examine the impact of tax avoidance on bank loan spreads and find that banks charge higher interest to firms engaged in tax avoidance.

Taken together, debtholders seem to view CSR participation as rewarding while consider involvement in tax avoidance a risky behavior and punishable. From a risk management perspective, firms involved with aggressive tax avoidance may seek to increase CSR activities to mitigate the negative outcomes of this risky behavior. This is consistent with the perspective that CSR possesses insurance-like properties that can temper the negative present-value effects of a firm's risky aggressive tax positions (Godfrey 2005; Godfrey et al. 2009, Davis et al. 2016).

Prior literature also provides evidence of the insurance application of CSR activities against a variety of firm risks. Christensen (2016) examines whether CSR reporting protects firm value

and finds that, on average, firms that issue stand-alone CSR reporting are less likely to engage in CSR related misconduct. He also finds that issuing CSR reports in the years before a misconduct occurs can mitigate the negative market reactions to the incident. Minor and Morgan (2011) argue that firms use CSR activities to protect their reputation from adverse events such as product recalls, and they find evidence to support this view. Col and Patel (2016) study the behaviors of the U.S. multinational firms that open facilities in tax haven countries. They find that, subsequent to opening a facility in a tax haven country, firms tend to increase CSR activities. Col and Patel argue that these tax-haven firms protect themselves from possible negative reactions to establishing entities in offshore tax havens. In a similar vein, firms could use CSR activities to reduce possibly negative perceptions of their tax avoidance behavior in order to enjoy a lower cost of debt. This is consistent with evidence that firms engaging in income-increasing discretionary accruals tend to use CSR activities to deflect potential criticism from non-shareholders pertaining to these accounting activities (Prior et al. 2008). Based on the preceding discussion, I present my hypothesis in the alternative form:

H1: *Ceteris paribus*, tax avoiding firms that increase thier CSR participation enjoy a lower cost of debt financing.

Extreme Tax Avoidance

Godfrey et al. (2008) argue that the insurance-like property of CSR engagement is likely greater for firms that face negative events that jeopardize the well-being of certain stakeholders. In the same line, firms that are heavily involved in tax avoidance are more likely to get caught and as a results considered riskier and subject to higher cost of debt by debtholders. Extreme tax avoidance is easier to detect by stakeholders and punished if not hedged by more CSR participations. Therefore, high tax-avoiding firms have more incentive to participate in CSR activities because

the benefits of such participation is higher for these firms. Thus, I formulate my second hypothesis as follows:

H2: *Ceteris paribus*, relative to low tax-avoiding firms, high tax-avoiding firms that increase their CSR participation enjoy a lower cost of debt

3. Research Method

Firm credit ratings and bond yield spread serve as proxies for the cost of debt. Prior research relies on both measures of the cost of debt (Ahmed et al. 2002; Francis et al. 2005; Jiang 2008; Minton and Schrand 1999; Sengupta 1998; Shi 2003; Qui et al. 2010). Firm credit ratings represent rating agencies' assessment of a firm's credit worthiness and can affect a firm's access to bank loans, bonds, and commercial paper markets; thus, they indirectly measure the cost of debt. I measure firm credit ratings with the S&P ratings obtained from Compustat. Yield spread directly measures a firm's incremental cost of debt as the risk premium that firms incur in the bond market (Sengupta 1998; Shi 2003). Following Jiang (2008), yield spread is the difference between the firm's bond yield to maturity and the Treasury bond yield with comparable maturity.

Three proxies are used to capture a broad range of tax avoidance. The first measure is the five-year GAAP effective tax rate ("GAAP ETR") that captures permanent tax voidance and is calculated as the sum of income tax expense over five years divided by the sum of pretax income for the same five-year period. The second measure of tax avoidance is the five-year cash ETR ("Cash ETR") that measures temporary tax avoidance (De Simone et al. 2017). Following Dyreng et al. (2008), Cash ETR is the sum of taxes paid divided by the sum of the pretax income net of special items, calculated over five years. I also test the sensitivity of my results to Book-tax

difference (*BTD*) that captures both permanent and temporary tax avoidance (Goh et al. 2016; De Simone et al. 2017). *BTD* is defined as the total difference between book and taxable income.

Following prior literature (Davis et al. 2016; Kim et al. 2012), I use KLD indicators to construct my measure of CSR activity. Specifically, *CSR_Index* is the sum of KLD strengths minus the sum of KLD weaknesses for each firm-year. CSR index scores are determined from the following five KLD categories: community, diversity, employee relations, environment, and product (Davis et al. 2016; Kim et al. 2012).[1]

Using the dependent and independent variables defined above, two regression models test whether the debt-related risks of tax avoidance are mitigated by CSR activities to lower the cost of debt. Control variables are adopted from prior literature (Davis et al. 2016; Edwards 2016; Jiang 2008)

$$\begin{aligned} Spread_{i,t+1} = {} & \alpha_0 + \alpha_1 CSR\_Index_{it} + \alpha_2 TaxAvoid_{it} + \alpha_3 CSR\_Index_{it} \times TaxAvoid_{it} \\ & + \alpha_4 Size_{it} + \alpha_5 ROA_{it} + \alpha_6 CFO_{it} + \alpha_7 Loss_{it} + \alpha_8 Leverage_{it} \\ & + \alpha_9 INTCOV_{it} + \alpha_{10} Capital_{it} + \alpha_{11} SUB_{it} + \alpha_{12} BTM_{it} + \alpha_{13} Return_{it} \\ & + \alpha_{14} Intang_{it} + \alpha_{15} SG\&A_{it} + \alpha_{16} R\&D_{it} + \alpha_{17} Cash_{it} \\ & + \alpha_{18} Tax\_Bnft\_Opt_{it} + \alpha_{19} For\_Inc_{it} + \alpha_{20} NOL_{it} + \alpha_{21} Senior_{it} \\ & + \alpha_{22} CreditSensitive_{it} + \varepsilon_{it} \end{aligned} \quad (1)$$

[1] As in Davis et al. (2016) and Kim et al. (2012), I exclude the category for corporate governance to avoid merely capturing the effects of corporate governance, which does not directly impact society. I also drop Human rights category because it is not available after 2002. In sensitivity analyses, I construct another measure of CSR that includes government and human rights indicators and my results are generally unaffected.

$$\Delta Rating_{it+1} = \alpha_0 + \alpha_1 CSR\_Index_{it} + \alpha_2 TaxAvoid_{it} + \alpha_3 CSR\_Index_{it} \times TaxAvoid_{it} + \alpha_4 \Delta Size_{it} + \alpha_5 \Delta ROA_{it} + \alpha_6 \Delta CFO_{it} + \alpha_7 Loss_{it} + \alpha_8 \Delta Leverage_{it} + \alpha_9 \Delta INTCOV_{it} + \alpha_{10} \Delta Capital_{it} + \alpha_{11} SUB_{it} + \alpha_{12} \Delta BTM_{it} + \alpha_{13} \Delta Intang_{it} + \alpha_{14} \Delta SG\&A_{it} + \alpha_{15} \Delta R\&D_{it} + \alpha_{16} \Delta Cash_{it} + \alpha_{17} \Delta Tax\_Bnft\_Opt_{it} + \alpha_{18} \Delta For\_Inc_{it} + \alpha_{19} \Delta NOL_{it} + \alpha_{20} Return_{it} + \alpha_{21} Rating_{it} + \varepsilon_{it} \quad (2)$$

In models 1 and 2 above, a negative coefficient on the interaction, *CSR_Index X TaxAvoid*, would support H1.

All variables are defined in Appendix 1. Following prior literature (Edwards 2016; Jiang 2008) I use a ‘‘rating change’’ model to test whether tax-avoiding firms improve their CSR performance to temper the negative perceptions about tax avoidance. In models (1) and (2) the variable of interest is the interaction between CSR and tax avoidance. If firms with higher levels of tax avoidance do more CSR activities to cover their risky behavior, i.e. tax avoidance, and enjoy a lower cost of debt, I expect that α_3 be negative and significant in model (1) and positive and significant in model (2).

Sample

My sample combines observations with data on the Securities Data Company’s Global New Issues, Compustat, and MSCI databases. The sample initially consists of all firms for which data are available on MSCI for the years 1991 through 2016. My initial sample begins in 1991 and ends in 2016 because coverage in the CSR database is available from 1991 through 2016. The empirical tests require five years of data to calculate both *GAAP ETR* and *Cash ETR*, so I use Compustat data from 1987 through 2016 to calculate these variables. I exclude financial firms (SIC

6000–6999) and utilities (SIC 4900–4999) because they are strictly regulated industries with unique operating characteristics and debt financing activities. Bond spreads for U.S. firms were retrieved from Securities Data Company's Global New Issues database. Following Jiang (2008), I exclude convertible float-rate bonds and bonds with asset-backed or credit-enhancement features, because spreads for these bonds tend to capture the creditworthiness of the collateral rather than the creditworthiness of the firm (Campbell and Taksler 2003). For firms with multiple bond issuances during a given year, I only include the bond with the largest offering amount (Khurana and Raman 2003). I eliminate observations with five-year GAAP ETRs and cash ETRs greater than 1 or less than 0, and observations with missing data for any of the regression variables. This process results in a final sample of 2,786 observations for the bond spread and *GAAP_ETR* regression. All continuous variables are winsorized at the first and 99th percentiles to mitigate the effects of outliers.

4. Results

Descriptive Statistics

Table 1 presents descriptive statistics. In panel A, the mean bond spread, *Spread*, is 1.93, which is slightly greater than reported by Jiang (2008) and Qui et al. (2010), which is possibly due to my inclusion of recession observations from the years 2008 and 2009. The mean and standard deviation for change in credit rating, $\Delta S\&PRating_{t+1}$, are -0.05 and 0.646, respectively, and these are comparable to Edwards (2018). The mean *CSR_Index* is 1.007, suggesting that firms in my sample have on average more CSR strengths than weaknesses. The mean and standard deviation of *GAAP_ETR* and *Cash_ETR* are similar to those in prior studies (Davis et al. 2016; Guenther et al. 2017). Another key point is that firms in my sample are relatively large, (mean, 25th percentile,

and 75th percentile, are 8.699, 7.787, and 9.57, respectively) with low standard deviation (Std.dev=1.363).[2]

Panel B of Table 2 provides univariate associations between variables. Notably, correlations between bond spread and both *GAAP ETR* and *Cash ETR* are positive ($p<0.10$), which suggests that tax-avoiding firms face greater debt risk. Bond spread and CSR, however, are negatively related ($p<0.10$); this provides initial support for the view that firms with higher levels of CSR activities enjoy lower costs of debt.

Cost of Debt, CSR, and Tax Avoidance

Table 2 presents the initial results of estimating Model (1) to test whether tax avoiding firms are likely to do more CSR activities to 'insure' their risky behavior, i.e. tax avoidance, and thereby reduce the cost of debt. For this purpose, tax avoidance is proxied by *GAAP_ETR*. Column 1 presents the result of estimating Model (1) without any control variables. Consistent with my expectation, the coefficient of the interaction, *CSR_Index×GAAP_ETR* , is negative and significant ($p<0.01$). This supports the view that firms that avoid taxes seek to reduce the cost of debt by engaging in CSR activities. And, given the trade-off between tax avoidance and not engaging in CSR activities, some firms choose to incur higher tax rates and avoid CSR activities. In column (2) the result of estimating Model (1) with all control variables is reported. Consistent with the results in column (1), the coefficient of the interaction, *CSR_Index×GAAP_ETR*, is negative and significant ($p<0.01$). Together, the results in columns (1) and (2) provide support for the first hypothesis that firms with higher GAAP ETR that have also higher level of CSR enjoy lower cost of debt.

[2] The market value of the firm at 25th Pctl is $3,607,264,840 with lagged sales of $2,313,000,000

In Table 3, I report the results of estimating Model (1) when tax avoidance is measured using the book-tax difference, i.e. *BTD*. The results in both columns (1) and (2) are significant and consistent with my prediction that tax avoiding firms that have higher level of CSR have lower bond spread. The coefficients of the interaction, CSR_Index×BTD (α_3) in columns (1) and (2) are -0.086 and -0.065, respectively, and statistically significant.

Table 4 presents the results of estimating Model (1) when tax avoidance is measured using *Cash_ETR*. Consistent with Table 2, Table 3 column (1) shows that firms facing higher *Cash_ETR* appear reduce the cost of debt, proxied by $Spread_{t+1}$, by engaging in more CSR activities. The results, however, disappear when control variables are added to the model in Column 2. Although the sign of the coefficient of the interaction, *CSR_Index×Cash_ETR*, is negative, consistent with my prediction, it is not statistically significant at the conventional levels. Although this lack of results is somewhat disconcerting, this is not uncommon in tax literature as each tax avoidance proxy measures a different type of tax avoidance (De Simon et al. 2018).

The results of estimating model (2) are reported in Table 5. In column (1) of Table 5, tax avoidance is measured by *GAAP_ETR*. The coefficient of the interaction, *CSR_Index×GAAP_ETR*, is positive and significant (*P<0.01*), which suggests that firms with higher levels of tax avoidance and CSR activities are assessed positively by credit rating agencies, relative to firms with lower levels of these variables. The column (2) results, where tax avoidance is measured using *Cash_ETR* are consistent with the results in column (1) and support my prediction. In column (3) where tax avoidance is measured using *BTD*, the coefficient of the interaction *CSR_Index×BTD* is not significant.

Overall, the results of estimating model (1) and model (2) support my first hypothesis that tax-avoiding firms, measured through GAAP ETR, Cash ETR, and BTD, can reduce debtholders perception of company's risk and pay lower premium on their bond by engaging in more socially responsible activities.

Next, I examine the effects of CSR strengths and weaknesses, separately, on the relation between tax avoidance and cost of debt to test whether the results are driven by engaging in more positive CSR, avoiding poor CSR activities or both. Tables 6 and 7 present the results of estimating model (1) and model (2), when CSR is measured using sum of strengths indicators from KLD. Table 6 column (1) presents the results of estimating model (1) when CSR is measured using sum of all strengths indicators and tax avoidance is measured using GAAP ETR. The coefficient of the interaction *Strength× GAAP_ETR* is negative and significant, suggesting debtholders value positive CSR activities and reward tax avoiding firms with lower cost of debt. The results reported in columns (2) and (3) using the other two measures of tax avoidance, i.e. Cash ETR and BTD, are consistent with those in column (1) and support my argument. Regression results for model (2) which tests the impact on firm's credit rating of jointly doing positive CSRs and tax avoidance, are reported in Table 7. Column (1) includes GAAP ETR as the measure of tax avoidance and CSR strengths as the measure of CSR. The coefficients of 0.155 on the interaction between CSR strength and GAAP_ETR is positive and significant ($P<0.05$ two tailed), providing support for my hypothesis. In columns (2) and (3) the regression includes Cash ETR and BTD as the measure of tax avoidance, respectively. Similar to column (1) CSR is measured using CSR strengths. In column (2) consistent with the results in column (1), the coefficient of 0.128 on the interaction between CSR strength and Cash_ETR is positive and significant ($P<0.05$, one-tailed). In column (3) where tax avoidance is measured using BTD, although the coefficient on the interaction term

is positive, it is not statistically significant. The coefficients on the main effect of CSR is negative and significant (p<0.01, two-tailed) in all three specifications in Table6, suggesting that debtholders consider CSR activities valuable and rewarding. In Table 7, the coefficients on the main effect of CSR is positive and significant (p<0.01, two-tailed), indicating that credit agencies also value CSR information and assign a better rating to firms with more positive CSR.

The results for testing the impact of CSR concerns on the relation between tax avoidance and cost of debt are presented in Table 8 and 9 for model (1) and (2), respectively. Except in column (3) of Table 9, in all other specifications the coefficients of the interaction *Concern×TaxAvoid* is not significant, providing evidence that performing poorly on CSR and avoiding taxes jointly does not effect the view of debtholders and credit agencies about a firm.

Extreme Tax Avoidance

To test my second hypothesis, that high-tax avoiding firms are more likely to participate in CSR activities than low-tax avoiding firm, to reduce their cost of debt financing, I create a dummy variable, *High_TaxAvoid*, for high tax avoidance firms based on the top quartiles of GAAP ETR, Cash ETR, and BTD, and replace the dummy variable with the continuous tax avoidance variables in models (1) and (2). Specifically, I run the following models:

$$\begin{aligned} Spread_{it+1} = {} & \alpha_0 + \alpha_1 CSR\_Index_{it} + \alpha_2 High\_TaxAvoid_{it} + \alpha_3 CSR\_Index_{it} \\ & \times High\_TaxAvoid_{it} + \alpha_4 Size_{it} + \alpha_5 ROA_{it} + \alpha_6 CFO_{it} + \alpha_7 Loss_{it} \\ & + \alpha_8 Leverage_{it} + \alpha_9 INTCOV_{it} + \alpha_{10} Capital_{it} + \alpha_{11} SUB_{it} + \alpha_{12} BTM_{it} \\ & + \alpha_{13} Return_{it} + \alpha_{14} Intang_{it} + \alpha_{15} SG\&A_{it} + \alpha_{16} R\&D_{it} + \alpha_{17} Cash_{it} \\ & + \alpha_{18} Tax\_Bnft\_Opt_{it} + \alpha_{19} For\_Inc_{it} + \alpha_{20} NOL_{it} + \alpha_{21} Senior_{it} \\ & + \alpha_{22} CreditSensitive_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

$$\Delta Rating_{it+1} = \alpha_0 + \alpha_1 CSR\_Index_{it} + \alpha_2 High\_TaxAvoid_{it} + \alpha_3 CSR\_Index_{it} \times High\_TaxAvoid_{it} + \alpha_4 \Delta Size_{it} + \alpha_5 \Delta ROA_{it} + \alpha_6 \Delta CFO_{it} + \alpha_7 Loss_{it} + \alpha_8 \Delta Leverage_{it} + \alpha_9 \Delta INTCOV_{it} + \alpha_{10} \Delta Capital_{it} + \alpha_{11} SUB_{it} + \alpha_{12} \Delta BTM_{it} + \alpha_{13} \Delta Intang_{it} + \alpha_{14} \Delta SG\&A_{it} + \alpha_{15} \Delta R\&D_{it} + \alpha_{16} \Delta Cash_{it} + \alpha_{17} \Delta Tax\_Bnft\_Opt_{it} + \alpha_{18} \Delta For\_Inc_{it} + \alpha_{19} \Delta NOL_{it} + \alpha_{20} Return_{it} + \alpha_{21} Rating_{it} + \varepsilon_{it} \quad (6)$$

The results of estimations of models (5) and (6) are reported in tables 10 and 11, respectively. In table 10, columns (1) and (3), the coefficients on the interaction terms are negative and significant, providing support for my second hypothesis that higher tax avoidance firms, relative to lower tax avoidance firms benefit more from engaging in CSR activates and enjoy a lower cost of debt financing. In column (3) where *Cash_ETR* is the dummy variable for the top quartile of Cash ETR, consistent with columns (1) and (3), the coefficient of the interaction term is negative but not statistically significant. The results of estimating model (6) is shown in table 11. Consistent with my second hypothesis, in column (1), where tax avoidance is measured using a dummy variable for the top quartile of GAAP ETR, the coefficient of the interaction term is significant and positive. In columns (2) and (3) the coefficients of the interaction terms are not significant. Overall, these results provide some evidence that firms with higher level of tax avoidance benefit more from participation in CSR activities than firms with lower levels of tax avoidance.

Sensitivity Analysis

The measure of CSR that has been used so far in the analysis excludes corporate governance and human rights indicator. I construct another measure of CSR, i.e. CSR2_Index, by introducing governance and human rights indicators to the original measure and repeat the whole analyses.

The results for the main analysis are reported in tables 12 and 13.Overall the results are generally consistent with the results in tables 2 to 5 in which CSR measure excludes governance and human right indicators. Udayasankar (2008) argues firms with different size have varying incentives of engaging in CSR activities. Udayasankar (2008) proposes a model in which very small and very large firms are equally motivated and likely to participate in CSR. Based on this model medium firms have the least motivated to participate in CSR initiatives. Given this, Udayasankar (2008) suggests that the relation between firm size and CSR is a U shape, i.e. polynomial. To account for the possible nonlinearity of the relationship between size and CSR, I estimate model (1) and (2) after replacing size with squared size as a control variable. The results (untabulated) are consistent and in most cases stronger.

5. Conclusion

Using risk management framework I generate a testable hypothesis that relates the joint effect o CSR and tax avoidance on cost of debt. Using three measures of tax avoidance, two measures of cost of debt, and a measure of CSR performance constructed using KLD indicators, I examine and find that tax avoiding firms increase their CSR activities to lower their cost of debt. Further analysis reveals that tax avoiding firms achieve this goal mainly by increasing their positive CSR activities and not by reducing negative CSR performance. I also provide some evidence that higher tax avoidance firms, relative to lower tax avoidance firms benefit more from participation in CSR activates and have a lower cost of debt financing. Also, I examine the sensitivity of my results using an alternative measure of CSR that includes governance and human rights indicators and obtain similar results. Further I test the sensitivity of the results to nonlinear relationship between CSR performance and firm size and find consistent and even stronger results.

Appendix A. Variable definition and measurement

$\Delta Rating_{it+1}$	$Rating_{it+1}$ - $Rating_{it}$,, where $Rating_{it}$ is firm *i*'s Standard & Poor's credit rating in year *t*. Credit ratings are reported as D (payment default) to AAA (extremely strong capacity to meet financial commitments) and are converted into numerical values from 1(D) to 22 (AAA).
$Spread_{t+1}$	Yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the Treasury bond yield with similar maturity. Following Qi et al. (2010), if there is no Treasury security with similar maturity available to match the duration of the corporate bond, the yield-to-maturity on the Treasury security is calculated as the linear interpolation between the two closest maturity matches.
CSR_Index	Total strengths minus total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product.
GAAP_ETR	The sum across years *t-4* through *t* of income tax expense (Compustat TXT) divided by the sum of the pretax income (Compustat PI) for the same years. Following prior literature (e.g. McGuire et al. 2012; Higgins et al. 2015) GAAP ETRs below 0 and greater than 1 are dropped. I multiply GAAP ETR by -1, so that higher values of *GAAP_ETR* indicate greater tax avoidance.
Cash_ETR	The sum from year *t-4* to *t* of cash taxes paid (Compustat TXPD) divided by the sum of pretax income (PI), net of special items (SPI), for the same years. Following prior literature (e.g. Goh et al. 2016; McGuire et al. 2012; Higgins et al. 2015) ETRs below 0 and greater than 1 are dropped. I multiply Cash ETR by -1, so that higher values of *Cash_ETR* indicate greater tax avoidance.
BTD	Book-tax difference, the excess of pretax income over inferred taxable income, deflated by prior-year total assets. The variable is measured using Compustat variables as: $BTD = \{PI_t - [(TXFED_t + TXFO_t)/0.35 - TLCF_t]\} / AT_{t-1}$.
Size	Following Inger and Vansant (2019) The natural log of prior-year total sales (Compustat $SALE_{t-1}$).
ROA	Return on assets, calculated as net income (Compustat NI_t) deflated by prior-year total assets (Compustat AT_{t-1}).
CFO	Operating cash flows (Compustat OANCF), deflated by total assets (Compustat AT_{t-1}).
Loss	Dummy variable set to 1 for positive net income (Compustat NI_t), 0 otherwise.

Leverage	Long-term debt (Compustat $DLTT_t$) divided by total assets (Compustat AT_t).
INTCOV	The natural logarithm of 1 plus the interest coverage ratio for the firm. The interest coverage ratio is calculated as income before interest and depreciation (Compustat OIBDP + XINT) divided by interest expense (Compustat XINT) for year t.
Capital	Capital intensity is calculated as firm's property, plant, and equipment net of depreciation (Compustat PPENT) at fiscal year-end t, deflated by lagged total assets (Compustat AT).
SUB	Dummy variable set to 1 for firm-years with a positive value for subordinated debt (Compustat DS), 0 otherwise.
BTM	Book-to-market ratio is calculated as book value of a firm's common stockholders' equity (Compustat CEQ) divided by its market value of equity (Compustat PRCC_F * CSHO) at fiscal year-end t.
Return	Change in the market value of the firm's stock (Compustat PRCC_F) during year t deflated by the market value of the firm's stock at fiscal year-end t-1.
Intang	Intangible assets (Compustat INTAN) divided by lagged total assets (Compustat AT).
SG&A	Selling, general, and administrative expense (Compustat XSGA) divided by lagged total assets (Compustat AT).
R&D	Research and development expense (Compustat XRD) divided by lagged total assets (Compustat AT).
Cash	Cash and cash equivalents (Compustat CHE) divided by lagged total assets (Compustat AT).
Tax_Bnft_Opt	Tax benefit of stock options (Compustat TXBCOF) divided by lagged total assets (Compustat AT).
For_Inc	Absolute value of pretax foreign income (Compustat PIFO) divided by the absolute value of pretax total income (Compustat PI).
NOL	Amount of tax loss carryforward (Compustat TLCF) divided by lagged total assets (Compustat AT).
Senior	Dummy variable set to 1 if bond is senior and 0 otherwise.
CreditSensitive	Dummy variable set to 1 if bond is credit sensitive and 0 otherwise.

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Table 1
Descriptive statistics

Panel A: Measures of central tendency

Variable	N	Mean	Standard deviation	25th percentile	75th percentile
Spread	2786	1.928	1.797	0.650	2.990
$\Delta S\&PRating_{t+1}$	9314	-0.050	0.646	0.000	0.000
CSR_Index	2786	1.007	3.332	-1.000	3.000
CSR2_Index	2786	0.562	3.516	-2.000	2.000
Strengths	2786	3.146	3.182	1.000	5.000
Weaknesses	2786	2.135	2.023	1.000	3.000
GAAP_ETR	2786	-0.327	0.112	-0.379	-0.276
Cash_ETR	3133	-0.251	0.121	-0.321	-0.175
BTD	3174	0.084	0.475	0.008	0.084
Size	2786	8.699	1.363	7.787	9.570
ROA	2786	0.068	0.061	0.033	0.101
CFO	2786	0.124	0.070	0.080	0.161
Leverage	2786	0.245	0.148	0.143	0.322
INTCOV	2786	2.578	0.800	2.066	2.946
Capital	2786	0.385	0.289	0.157	0.564
BTM	2786	0.415	0.289	0.228	0.547
Return	2786	0.090	0.352	-0.121	0.264
Intang	2786	0.215	0.231	0.025	0.340
SG&A	2786	0.197	0.173	0.065	0.272
R&D	2786	0.019	0.032	0.000	0.025
Cash	2786	0.091	0.103	0.022	0.124
Tax_Bnft_Opt	2786	0.001	0.002	0.000	0.000
For_Inc	2786	0.352	0.599	0.000	0.492
NOL	2786	0.040	0.101	0.000	0.034

Panel A reports the mean, standard deviation, 25th percentile, and 75th percentile of all continuous variables used in the analyses. Panel B presents the Pearson correlation matrix for all variables in the lower-left quadrant and Spearman correlations in the upper-right quadrant. Correlations significant at the 10% level or lower are shown in bold (two tail). All variables are defined in Appendix A.

Table 1
Descriptive statistics (continued)

Panel B: Univariate correlations (Pearson in the lower left; Spearman in the upper right)

	Spread	*CSR_Index*	*GAAP_ETR*	*Cash_ETR*	*BTD*	*Size*	*ROA*	*CFO*	*Leverage*	*INTCOV*	*Capital*	*BTM*	*Return*	*Intang*	*SG&A*	*R&D*	*Cash*	*Tax_Bnft_Opt*	*For_Inc*
Spread		**-0.59**	**0.099**	**0.190**	**0.160**	**-0.163**	**-0.158**	**-0.129**	**0.265**	**-0.158**	**-0.067**	**0.178**	0.008	**0.174**	**-0.174**	**-0.202**	**0.064**	**0.289**	**-0.056**
CSR_Index	**-0.100**		**0.143**	**0.053**	**0.128**	**0.238**	**0.216**	**0.167**	**-0.069**	**0.231**	**-0.170**	**-0.288**	**0.041**	**0.134**	**0.202**	**0.185**	**0.167**	**0.124**	**0.104**
GAAP_ETR	**0.067**	**0.157**		**0.411**	**0.331**	**0.046**	**0.141**	0.001	-0.026	**0.107**	**-0.231**	**-0.105**	**0.065**	**0.176**	0.000	**0.332**	**0.276**	**0.196**	**0.303**
Cash_ETR	**0.162**	**0.080**	**0.367**		**0.440**	**-0.081**	**-0.055**	0.021	**0.088**	**-0.043**	-0.028	0.001	**0.043**	**0.083**	**-0.198**	**0.088**	**0.065**	**0.111**	**0.092**
BTD	0.022	**0.052**	**0.076**	**0.087**		**-0.072**	**0.267**	**0.163**	0.036	**0.117**	**-0.042**	**-0.106**	**0.088**	**0.113**	**-0.073**	**0.073**	**0.157**	**0.155**	**0.080**
Size	**-0.212**	**0.248**	0.01	**-0.092**	-0.005		**0.067**	0.030	**-0.091**	**0.109**	-0.022	**-0.132**	-0.034	0.019	0.020	**0.067**	-0.011	-0.018	**0.097**
ROA	**-0.211**	**0.184**	**0.126**	-0.001	**0.055**	**0.056**		**0.608**	**-0.310**	**0.669**	-0.021	**-0.507**	0.036	0.038	**0.304**	**0.160**	**0.270**	**0.226**	0.013
CFO	**-0.131**	**0.132**	0.014	**0.081**	0.031	0.017	**0.594**		**-0.174**	**0.542**	**0.300**	**-0.423**	0.038	**-0.095**	**0.187**	0.035	**0.155**	**0.141**	-0.016
Leverage	**0.343**	**-0.077**	0.005	**0.081**	0.009	**-0.135**	**-0.277**	**-0.151**		**-0.665**	**0.136**	0.003	0.010	**0.100**	**-0.186**	**-0.296**	**-0.297**	-0.039	**-0.161**
INTCOV	**-0.198**	**0.206**	**0.071**	-0.01	0.029	**0.069**	**0.595**	**0.516**	**-0.626**		**-0.095**	**-0.334**	0.001	**0.040**	**0.270**	**0.238**	**0.372**	**0.254**	**0.137**
Capital	**0.055**	**-0.189**	**-0.144**	**0.091**	-0.006	**-0.101**	-0.02	**0.298**	**0.144**	**-0.095**		0.104	**-0.054**	**-0.551**	**-0.242**	**-0.350**	**-0.370**	**-0.242**	**-0.254**
BTM	**0.309**	**-0.253**	**-0.045**	0.012	-0.022	**-0.131**	**-0.442**	**-0.373**	-0.039	**-0.272**	**0.128**		**-0.153**	**-0.076**	**-0.320**	**-0.210**	**-0.154**	**-0.160**	**-0.065**
Return	-0.030	**0.042**	**0.047**	**0.055**	0.026	**-0.064**	0.018	0.018	0.034	-0.036	-0.037	**-0.183**		0.033	-0.008	-0.005	**0.105**	**0.079**	-0.017
Intang	**0.108**	**0.109**	**0.102**	**0.062**	0.009	-0.026	0.004	**-0.071**	**0.113**	-0.033	**-0.414**	-0.008	**0.048**		**0.140**	**0.161**	**0.075**	**0.240**	**0.112**
SG&A	**-0.155**	**0.161**	-0.027	**-0.163**	0.005	0.036	**0.253**	**0.169**	**-0.137**	**0.223**	**-0.213**	**-0.275**	-0.011	0.021		**0.259**	**0.160**	**0.103**	**0.091**
R&D	**-0.150**	**0.214**	**0.202**	**0.106**	**0.111**	0.037	**0.183**	**0.148**	**-0.277**	**0.295**	**-0.27**	**-0.196**	-0.016	0.019	**0.189**		**0.281**	**0.058**	**0.451**
Cash	0.010	**0.226**	**0.234**	**0.106**	**0.042**	**-0.048**	**0.278**	**0.234**	**-0.206**	**0.382**	**-0.296**	**-0.145**	**0.095**	0.005	**0.106**	**0.414**		**0.235**	**0.287**
Tax_Bnft_Opt	**0.010**	**0.065**	**0.061**	**0.068**	-0.001	**-0.068**	**0.197**	**0.196**	-0.021	**0.2**	**-0.114**	**-0.197**	**0.102**	**0.088**	**0.086**	**0.086**	**0.199**		**0.129**
For_Inc	**0.081**	0.012	**-0.056**	**-0.051**	-0.007	0.020	-0.079	**-0.051**	0.007	**-0.040**	-0.037	**0.061**	-0.039	0.003	-0.016	0.034	0.023	-0.010	
NOL	**0.028**	**0.041**	**0.057**	**0.054**	**0.994**	-0.002	0.004	0.002	0.011	0.013	-0.021	-0.007	0.024	0.010	0.015	**0.106**	0.028	-0.010	-0.002

Table 2

Regression analyses to examine the effects of CSR activity, tax avoidance, and the interaction between CSR activity and tax avoidance on bond spreads

	(1)		(2)	
	***Spread*$_{t+1}$**		***Spread*$_{t+1}$**	
Constant	1.967***	(58.89)	2.525***	(18.06)
CSR_Index	-0.087***	(-7.98)	-0.029***	(-3.28)
GAAP_ETR	0.906***	(2.77)	0.314	(1.05)
*CSR_Index*GAAP_ETR*	-0.263***	(-3.06)	-0.209***	(-2.78)
Size			-0.239***	(-9.88)
ROA			-2.900***	(-4.33)
CFO			0.169	(0.27)
Loss			0.323	(1.40)
Leverage			2.402***	(7.00)
INTCOV			0.027	(0.50)
CAPITAL			0.140	(0.95)
SUB			0.284***	(2.82)
BTM			1.000***	(6.38)
Return			0.119	(1.45)
Intang			-0.343***	(-2.77)
SG&A			0.202	(1.19)
R&D			-0.633	(-0.71)
Cash			0.538*	(1.75)
Tax_Bnft_Opt			-10.974	(-1.38)
For_Inc			0.022***	(3.24)
NOL			0.043	(0.52)
Senior			-0.561***	(-4.04)
CreditSensitive			-0.758***	(-5.06)
Year Fixed Effects	Yes		Yes	
Observations	2862		2786	
Adjusted R^2	0.512		0.611	

This table reports the effect of the interaction between CSR and tax avoidance on bond spreads. The dependent variable, *Spread*$_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity. *CSR* is total strengths minus total weaknesses from the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product. Tax avoidance is measured using *GAAP_ETR*, the sum of income tax expense divided by the sum of the pretax income, with the sums calculated for the years year *t-4* through year *t*. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10-, 5-, and 1-percent levels, respectively, based on standard errors clustered at the firm level.

Table 3

Regression analyses examining the effect of the trade-off between CSR and tax avoidance on bond spreads

	(1)		(2)	
	Spread$_{t+1}$		***Spread$_{t+1}$***	
Constant	2.166***	(60.88)	2.724***	(21.15)
CSR_Index	-0.106***	(-8.94)	-0.034***	(-3.36)
BTD	0.568**	(2.02)	-0.969***	(-2.68)
*CSR_Index*BTD*	-0.086**	(-2.19)	-0.065*	(-1.85)
Size			-0.253***	(-10.04)
ROA			-2.547***	(-3.67)
CFO			0.100	(0.17)
Loss			0.287	(1.32)
Leverage			2.339***	(6.99)
INTCOV			-0.038	(-0.69)
CAPITAL			0.049	(0.34)
SUB			0.221**	(2.25)
BTM			0.870***	(5.96)
Return			0.145*	(1.72)
Intang			-0.411***	(-3.37)
SG&A			0.389*	(1.91)
R&D			-0.674	(-0.75)
Cash			0.461	(1.49)
Tax_Bnft_Opt			-15.578*	(-1.77)
For_Inc			0.020***	(3.02)
NOL			1.405***	(3.06)
Senior			-0.530***	(-4.18)
CreditSensitive			-0.826***	(-6.11)
Year Fixed-Effects	Yes		Yes	
Observations	3173		3051	
Adjusted R^2	0.507		0.616	

This table reports the effect of the interaction between CSR and tax avoidance on bond spreads. The dependent variable, *Spread$_{t+1}$*, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity.. *CSR* is measured as total strengths minus total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; tax avoidance is measured using *BTD*, calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. The dependent variable, *Spread$_{t+1}$*, is the yield to maturity at the issuance date for the largest bond that firm i issued in year t+1, minus the Treasury bond yield with similar maturity. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 4

Regression analyses examining the effect of the trade-off between CSR and tax avoidance on bond spreads

	(1)		(2)	
	***Spread*$_{t+1}$**		***Spread*$_{t+1}$**	
Constant	2.002***	(63.60)	2.572***	(20.57)
CSR_Index	-0.093***	(-9.23)	-0.027***	(-3.22)
CashETR	0.714**	(2.44)	0.113	(0.45)
*CSR_Index*Cash_ETR*	-0.210**	(-2.50)	-0.055	(-0.78)
Size			-0.241***	(-10.67)
ROA			-2.131***	(-3.50)
CFO			0.254	(0.45)
Loss			0.268	(1.12)
Leverage			2.404***	(7.83)
INTCOV			0.016	(0.32)
CAPITAL			-0.056	(-0.40)
SUB			0.296***	(3.10)
BTM			1.187***	(9.44)
Return			0.139*	(1.76)
Intang			-0.460***	(-3.78)
SG&A			0.288*	(1.69)
R&D			-0.730	(-0.84)
Cash			0.172	(0.61)
Tax_Bnft_Opt			-10.719	(-1.34)
For_Inc			0.024***	(3.86)
NOL			0.024	(0.33)
Senior			-0.555***	(-4.46)
CreditSensitive			-0.788***	(-6.02)
Year Fixed-Effects	Yes		Yes	
Observations	3133		3057	
Adjusted R^2	0.505		0.612	

This table reports the effect of the interaction between CSR and tax avoidance on bond spreads. The dependent variable, *Spread*$_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity.. *CSR* is measured as total strengths minus total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; tax avoidance is measured using *Cash_ETR*, calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). The dependent variable, *Spread*$_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm i issued in year t+1, minus the Treasury bond yield with similar maturity. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 5

Regression analyses examining the effect of the trade-off between CSR and tax avoidance on firm's credit rating

	$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$	
CSR_Index	0.024**	(2.45)	0.028***	(3.02)	0.031***	(3.55)
GAAP_ETR	0.121	(0.51)				
CSR_Index GAAP_ETR*	0.245***	(3.17)				
Cash_ETR			-0.067	(-0.28)		
CSR_Index Cash_ETR*			0.194**	(2.46)		
BTD					0.275*	(1.66)
CSR_Index BTD*					-0.061	(-1.13)
ΔSize	0.876***	(5.39)	0.752***	(4.32)	0.496***	(3.64)
ΔROA	1.790***	(3.39)	1.207***	(2.68)	2.126***	(5.13)
ΔCFO	1.150**	(2.21)	1.297***	(2.67)	1.826***	(4.18)
Loss	-0.786***	(-5.01)	-0.733***	(-4.33)	-0.789***	(-6.01)
ΔLeverage	-1.856***	(-4.56)	-2.019***	(-5.00)	-2.357***	(-6.85)
ΔINTCOV	0.538***	(6.53)	0.567***	(7.13)	0.477***	(6.82)
ΔCapital	-0.088	(-0.33)	0.063	(0.23)	-0.113	(-0.47)
SUB	-0.162*	(-1.91)	-0.169**	(-2.08)	-0.176**	(-2.51)
ΔBTM	-0.924***	(-5.05)	-0.461**	(-2.49)	-0.240*	(-1.78)
ΔIntang	0.027	(0.31)	-0.055	(-0.29)	-0.034	(-0.43)
ΔSG&A	-0.434	(-0.71)	-0.524	(-0.72)	-0.197	(-0.44)
ΔR&D	1.446	(0.97)	0.974	(0.39)	1.401	(1.27)
ΔCash	-0.337	(-1.11)	-0.429	(-1.22)	-0.195	(-0.95)
ΔTax_Bnft_Opt	-13.529	(-1.54)	-0.144	(-0.01)	-3.993	(-0.51)
ΔFor_Inc	0.001	(0.26)	-0.016	(-0.55)	-0.001	(-0.19)
ΔNOL	-0.000	(-0.02)	-0.736	(-1.49)	0.005	(0.50)
Return	0.823***	(8.61)	0.915***	(9.75)	0.762***	(8.00)
$S\&PRating_t$	-0.113***	(-13.13)	-0.114***	(-13.14)	-0.106***	(-13.07)
Observations	9314		9905		12341	
Pseudo R^2	0.070		0.068		0.066	

This table reports the effect of the interaction between CSR and tax avoidance on firm's credit rating. The dependent variable, $\Delta S\&PRating_{t+1}$, is change in S&P firm's credit rating from year *t* to year *t-1*, where $Rating_{it}$ is firm i's Standard & Poor's credit rating in year *t*. Credit ratings are reported as D (payment default) to AAA (extremely strong capacity to meet financial commitments) and are converted into numerical values from 1(D) to 22 (AAA). . *CSR* is measured as total strengths minus total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; t *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, $\Delta S\&PRating_{t+1}$, is the change in firm's Standard & Poor credit rating from year *t* to year *t+1*. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 6

Regression analyses examining the effect of the trade-off between CSR Strengths and tax avoidance on bond spreads

	(1)		(2)		(3)	
	$Spread_{t+1}$		$Spread_{t+1}$		$Spread_{t+1}$	
Constant	2.521***	(17.89)	2.573***	(20.56)	2.733***	(21.21)
Strength	-0.037***	(-3.50)	-0.038***	(-3.91)	-0.043***	(-3.81)
GAAP_ETR	0.392	(1.26)				
Strength GAAP_ETR*	-0.194**	(-2.57)				
Cash_ETR			0.103	(0.42)		
Strength Cash_ETR*			-0.115*	(-1.69)		
BTD					-0.980***	(-2.64)
Strength BTD*					-0.095***	(-2.62)
Size	-0.209***	(-7.41)	-0.206***	(-7.81)	-0.215***	(-7.32)
ROA	-2.865***	(-4.21)	-2.129***	(-3.50)	-2.534***	(-3.54)
CFO	0.160	(0.26)	0.222	(0.39)	0.060	(0.10)
Loss	0.338	(1.44)	0.284	(1.18)	0.297	(1.36)
Leverage	2.370***	(6.87)	2.396***	(7.85)	2.302***	(6.90)
INTCOV	0.023	(0.42)	0.017	(0.33)	-0.036	(-0.65)
CAPITAL	0.166	(1.13)	-0.032	(-0.23)	0.083	(0.58)
SUB	0.280***	(2.77)	0.292***	(3.09)	0.218**	(2.21)
BTM	0.977***	(6.16)	1.176***	(9.41)	0.871***	(5.96)
Return	0.115	(1.41)	0.131*	(1.65)	0.135	(1.60)
Intang	-0.352***	(-2.81)	-0.457***	(-3.75)	-0.413***	(-3.36)
SG&A	0.174	(1.02)	0.244	(1.45)	0.336*	(1.66)
R&D	-0.475	(-0.52)	-0.378	(-0.43)	-0.433	(-0.48)
Cash	0.510	(1.63)	0.196	(0.69)	0.447	(1.45)
Tax_Bnft_Opt	-11.011	(-1.34)	-10.656	(-1.30)	-14.491	(-1.64)
For_Inc	0.021***	(3.01)	0.024***	(3.79)	0.020***	(2.96)
NOL	0.043	(0.52)	0.025	(0.34)	1.550***	(3.34)
Senior	-0.557***	(-3.98)	-0.556***	(-4.47)	-0.541***	(-4.26)
CreditSensitive	-0.751***	(-4.99)	-0.783***	(-5.97)	-0.829***	(-6.13)
Year Fixed-Effects	Yes		Yes		Yes	
Observations	2786		3057		3051	
Adjusted R^2	0.611		0.613		0.618	

This table reports the effect of the interaction between CSR Strengths and tax avoidance on bond spreads. The dependent variable, $Spread_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity. *Strength* is CSR strengths measured as total strengths in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, $Spread_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the Treasury bond yield with similar maturity. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 7

Regression analyses examining the effect of the trade-off between CSR Strength and tax avoidance on firm's credit rating

	(1)		(2)		(3)	
	$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$	
Strength	0.034***	(3.15)	0.037***	(3.87)	0.033***	(3.60)
GAAP_ETR	0.032	(0.13)				
Strength GAAP_ETR*	0.155**	(1.98)				
Cash_ETR			-0.141	(-0.59)		
Strength Cash_ETR*			0.114	(1.36)		
BTD					0.319*	(1.91)
Strength BTD*					0.007	(0.13)
ΔSize	0.893***	(5.46)	0.773***	(4.43)	0.521***	(3.79)
ΔROA	1.775***	(3.37)	1.193***	(2.65)	2.114***	(5.11)
ΔCFO	1.137**	(2.19)	1.293***	(2.67)	1.824***	(4.17)
Loss	-0.811***	(-5.15)	-0.762***	(-4.49)	-0.798***	(-6.06)
ΔLeverage	-1.860***	(-4.57)	-2.030***	(-5.03)	-2.353***	(-6.85)
ΔINTCOV	0.535***	(6.47)	0.562***	(7.06)	0.475***	(6.77)
ΔCapital	-0.082	(-0.31)	0.056	(0.21)	-0.108	(-0.45)
SUB	-0.171**	(-2.02)	-0.178**	(-2.21)	-0.177**	(-2.53)
ΔBTM	-0.943***	(-5.14)	-0.476**	(-2.57)	-0.243*	(-1.79)
ΔIntang	0.029	(0.33)	-0.045	(-0.24)	-0.029	(-0.37)
ΔSG&A	-0.466	(-0.77)	-0.542	(-0.74)	-0.220	(-0.50)
ΔR&D	1.505	(1.01)	0.985	(0.40)	1.364	(1.24)
ΔCash	-0.331	(-1.10)	-0.438	(-1.25)	-0.198	(-0.97)
ΔTax_Bnft_Opt	-13.465	(-1.53)	0.146	(0.01)	-3.995	(-0.51)
ΔFor_Inc	0.001	(0.30)	-0.016	(-0.55)	-0.001	(-0.21)
ΔNOL	-0.002	(-0.09)	-0.760	(-1.54)	-0.002	(-0.18)
Return	0.817***	(8.57)	0.908***	(9.65)	0.763***	(7.99)
$S\&PRating_t$	-0.121***	(-12.94)	-0.122***	(-13.15)	-0.109***	(-12.90)
Observations	9314		9905		12341	
Pseudo R^2	0.070		0.068		0.066	

This table reports the effect of the interaction between CSR strengths and tax avoidance on firm's credit rating. The dependent variable, $\Delta S\&PRating_{t+1}$, is change in S&P firm's credit rating from year t to year *t-1*, where $Rating_{it}$ is firm i's Standard & Poor's credit rating in year *t*. Credit ratings are reported as D (payment default) to AAA (extremely strong capacity to meet financial commitments) and are converted into numerical values from 1(D) to 22 (AAA).. *Strength* is CSR strengths measured as total strengths in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, $\Delta S\&PRating_{t+1}$, is change in firm's Standard & Poor credit rating from year *t* to year *t+1*. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 8

Regression analyses examining the effect of the trade-off between CSR Weaknesses and tax avoidance on bond spreads

	(1)		(2)		(3)	
	***Spread*$_{t+1}$**		***Spread*$_{t+1}$**		***Spread*$_{t+1}$**	
Constant	2.523***	(17.81)	2.575***	(20.47)	2.724***	(20.91)
Weakness	0.006	(0.32)	-0.006	(-0.36)	0.013	(0.70)
GAAP_ETR	0.394	(1.31)				
*Weakness * GAAP_ETR*	0.016	(0.09)				
Cash_ETR			0.134	(0.54)		
*Weakness * Cash_ETR*			-0.177	(-1.58)		
BTD					-1.027***	(-2.61)
*Weakness * BTD*					-0.057	(-0.92)
Size	-0.265***	(-9.47)	-0.255***	(-10.27)	-0.291***	(-10.52)
ROA	-2.971***	(-4.35)	-2.160***	(-3.54)	-2.651***	(-3.72)
CFO	0.092	(0.15)	0.227	(0.40)	0.013	(0.02)
Loss	0.327	(1.41)	0.294	(1.20)	0.268	(1.23)
Leverage	2.380***	(6.90)	2.376***	(7.79)	2.332***	(6.86)
INTCOV	0.019	(0.35)	0.012	(0.23)	-0.058	(-1.03)
CAPITAL	0.161	(1.09)	-0.047	(-0.34)	0.083	(0.58)
SUB	0.269***	(2.73)	0.299***	(3.11)	0.222**	(2.26)
BTM	1.019***	(6.34)	1.217***	(9.63)	0.863***	(5.72)
Return	0.136*	(1.67)	0.148*	(1.86)	0.167**	(1.97)
Intang	-0.381***	(-3.02)	-0.485***	(-3.99)	-0.431***	(-3.51)
SG&A	0.200	(1.15)	0.275	(1.62)	0.392*	(1.82)
R&D	-1.337	(-1.46)	-1.082	(-1.24)	-1.119	(-1.22)
Cash	0.434	(1.35)	0.061	(0.21)	0.487	(1.57)
Tax_Bnft_Opt	-9.962	(-1.25)	-9.893	(-1.22)	-15.655*	(-1.78)
For_Inc	0.021***	(2.79)	0.023***	(3.41)	0.020***	(3.02)
NOL	0.042	(0.48)	0.022	(0.29)	1.113***	(2.68)
Senior	-0.566***	(-4.03)	-0.560***	(-4.49)	-0.535***	(-4.17)
CreditSensitive	-0.768***	(-5.08)	-0.800***	(-6.08)	-0.825***	(-6.05)
Year Fixed-Effects	Yes		Yes		Yes	
Observations	2786		3057		3051	
Adjusted R^2	0.607		0.610		0.610	

This table reports the effect of the interaction between CSR weaknesses and tax avoidance on bond spreads. The dependent variable, *Spread*$_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity. *Weakness* is CSR weaknesses measured as total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, *Spread*$_{t+1}$, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the Treasury bond yield with similar maturity. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 9

Regression analyses examining the effect of the trade-off between CSR Strength and tax avoidance on firm's credit rating

	(1)		(2)		(3)	
	$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$	
Weakness	0.009	(0.57)	0.008	(0.55)	-0.006	(-0.42)
GAAP_ETR	0.111	(0.46)				
*Weakness * GAAP_ETR*	-0.135	(-0.95)				
Cash_ETR			-0.110	(-0.47)		
*Weakness * Cash_ETR*			-0.152	(-1.30)		
BTD					0.360**	(2.16)
*Weakness * BTD*					0.202*	(1.67)
ΔSize	0.854***	(5.24)	0.730***	(4.20)	0.474***	(3.47)
ΔROA	1.805***	(3.40)	1.207***	(2.67)	2.101***	(5.06)
ΔCFO	1.117**	(2.14)	1.284***	(2.65)	1.829***	(4.20)
Loss	-0.818***	(-5.21)	-0.764***	(-4.52)	-0.781***	(-5.93)
ΔLeverage	-1.835***	(-4.49)	-1.977***	(-4.88)	-2.327***	(-6.75)
ΔINTCOV	0.530***	(6.41)	0.564***	(7.05)	0.475***	(6.79)
ΔCapital	-0.082	(-0.30)	0.061	(0.22)	-0.115	(-0.47)
SUB	-0.168**	(-2.01)	-0.192**	(-2.36)	-0.184***	(-2.65)
ΔBTM	-0.923***	(-5.01)	-0.456**	(-2.44)	-0.244*	(-1.80)
ΔIntang	0.028	(0.32)	-0.054	(-0.29)	-0.032	(-0.41)
ΔSG&A	-0.437	(-0.72)	-0.511	(-0.70)	-0.197	(-0.44)
ΔR&D	1.352	(0.91)	0.843	(0.34)	1.331	(1.21)
ΔCash	-0.324	(-1.07)	-0.443	(-1.26)	-0.199	(-0.97)
ΔTax_Bnft_Opt	-13.700	(-1.56)	-0.375	(-0.03)	-4.096	(-0.52)
ΔFor_Inc	0.001	(0.28)	-0.016	(-0.55)	-0.001	(-0.20)
ΔNOL	0.007	(0.32)	-0.704	(-1.44)	0.003	(0.36)
Return	0.829***	(8.65)	0.920***	(9.75)	0.766***	(8.01)
$S\&PRating_t$	-0.106***	(-12.17)	-0.107***	(-12.55)	-0.097***	(-12.62)
Observations	9314		9905		12341	
Pseudo R^2	0.068		0.067		0.066	

This table reports the effect of the interaction between CSR weaknesses and tax avoidance on firm's credit rating. The dependent variable, $\Delta S\&PRating_{t+1}$, is change in S&P firm's credit rating from year t to year *t-1*, where $Rating_{it}$ is firm i's Standard & Poor's credit rating in year *t*. Credit ratings are reported as D (payment default) to AAA (extremely strong capacity to meet financial commitments) and are converted into numerical values from 1(D) to 22 (AAA). *Weakness* is CSR weaknesses measured as total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, $\Delta S\&PRating_{t+1}$, is change in firm's Standard & Poor credit rating from year *t* to year *t+1*. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 10

Panel A: Regression analyses examining the effect of the trade-off between CSR and tax avoidance on bond spreads for high vs. low tax avoiding firms

	(1)		(2)		(3)	
	Spread$_{t+1}$		***Spread$_{t+1}$***		***Spread$_{t+1}$***	
Constant	2.474***	(17.64)	2.521***	(20.17)	2.609***	(19.85)
CSR_Index	-0.013	(-1.39)	-0.024***	(-2.70)	-0.024**	(-2.32)
GAAP_ETR	0.217***	(2.91)				
*CSR_Index * GAAP_ETR*	-0.057***	(-3.41)				
Cash_ETR			0.141**	(2.26)		
*CSR_Index * Cash_ETR*			-0.016	(-1.00)		
BTD					0.205***	(2.76)
*CSR_Index * BTD*					-0.052***	(-2.67)
Size	-0.237***	(-9.83)	-0.239***	(-10.69)	-0.245***	(-10.01)
ROA	-2.781***	(-4.22)	-2.095***	(-3.46)	-3.408***	(-5.60)
CFO	0.180	(0.29)	0.252	(0.44)	-0.079	(-0.13)
Loss	0.330	(1.45)	0.264	(1.09)	0.356*	(1.67)
Leverage	2.403***	(7.04)	2.392***	(7.82)	2.360***	(7.04)
INTCOV	0.038	(0.70)	0.022	(0.45)	-0.016	(-0.29)
CAPITAL	0.158	(1.09)	-0.095	(-0.69)	0.034	(0.23)
SUB	0.274***	(2.73)	0.280***	(2.93)	0.225**	(2.23)
BTM	1.018***	(6.52)	1.175***	(9.33)	0.822***	(5.55)
Return	0.113	(1.39)	0.137*	(1.74)	0.140*	(1.66)
Intang	-0.333***	(-2.67)	-0.465***	(-3.83)	-0.351***	(-2.83)
SG&A	0.220	(1.31)	0.313*	(1.85)	0.491**	(2.58)
R&D	-0.981	(-1.10)	-0.993	(-1.16)	-0.900	(-0.99)
Cash	0.503	(1.64)	0.140	(0.49)	0.546*	(1.79)
Tax_Bnft_Opt	-10.672	(-1.33)	-10.887	(-1.34)	-14.992*	(-1.68)
For_Inc	0.020***	(3.08)	0.024***	(3.87)	0.021***	(3.18)
NOL	0.041	(0.51)	0.020	(0.28)	0.077	(0.67)
Senior	-0.567***	(-4.11)	-0.544***	(-4.41)	-0.481***	(-3.80)
CreditSensitive	-0.772***	(-5.18)	-0.780***	(-5.96)	-0.786***	(-5.81)
Year Fixed-Effects	Yes		Yes		Yes	
Observations	2786		3057		3051	
Adjusted R^2	0.394		0.613		0.614	

This table reports the effect of the interaction between CSR and tax avoidance on bond spread for high versus low tax-avoiding firms. The dependent variable, *Spread$_{t+1}$*, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity. *CSR_Index* is total strengths minus total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; *GAAP_ETR* is a dummy variable that takes the value of one for observations in the top quartile of *GAAP_ETR* and zero otherwise. *Cash_ETR* is a dummy variable that takes the value of one for observations in the top quartile of *Cash_ETR* and zero otherwise. *BTD* is a dummy variable that takes the value of one for observations in the top quartile of *BTD* and zero otherwise. In all three columns, the dependent variable, *Spread$_{t+1}$*, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the Treasury bond yield with similar maturity. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 11

Panel B: Regression analyses examining the effect of the trade-off between CSR and tax avoidance on firm's credit rating for high vs. low tax avoiding firms

	(1)		(2)		(3)	
	$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$	
CSR_Index	0.012	(1.03)	0.024**	(2.20)	0.032***	(3.42)
GAAP_ETR	0.065	(1.05)				
*CSR_Index * GAAP_ETR*	0.044**	(2.40)				
Cash_ETR			-0.095	(-1.43)		
*CSR_Index * Cash_ETR*			0.023	(1.07)		
BTD					0.306*	(1.85)
*CSR_Index * BTD*					-0.006	(-0.29)
ΔSize	0.877***	(5.38)	0.759***	(4.38)	0.500***	(3.66)
ΔROA	1.786***	(3.38)	1.208***	(2.68)	2.127***	(5.14)
ΔCFO	1.143**	(2.19)	1.301***	(2.68)	1.822***	(4.17)
Loss	-0.799***	(-5.11)	-0.728***	(-4.30)	-0.789***	(-6.01)
ΔLeverage	-1.866***	(-4.57)	-2.032***	(-5.03)	-2.358***	(-6.86)
ΔINTCOV	0.536***	(6.50)	0.566***	(7.13)	0.478***	(6.82)
ΔCapital	-0.089	(-0.33)	0.058	(0.21)	-0.111	(-0.46)
SUB	-0.156*	(-1.85)	-0.160**	(-1.97)	-0.175**	(-2.51)
ΔBTM	-0.929***	(-5.08)	-0.462**	(-2.49)	-0.240*	(-1.77)
ΔIntang	0.030	(0.34)	-0.054	(-0.29)	-0.031	(-0.39)
ΔSG&A	-0.453	(-0.75)	-0.492	(-0.67)	-0.199	(-0.45)
ΔR&D	1.550	(1.05)	0.950	(0.38)	1.374	(1.25)
ΔCash	-0.320	(-1.06)	-0.434	(-1.24)	-0.192	(-0.93)
ΔTax_Bnft_Opt	-13.622	(-1.55)	0.241	(0.02)	-4.032	(-0.51)
ΔFor_Inc	0.001	(0.28)	-0.014	(-0.50)	-0.001	(-0.20)
ΔNOL	-0.004	(-0.16)	-0.753	(-1.52)	-0.001	(-0.14)
Return	0.821***	(8.60)	0.914***	(9.73)	0.762***	(8.00)
$S\&PRating_t$	-0.112***	(-13.17)	-0.116***	(-13.18)	-0.106***	(-13.01)
Observations	9314		9905		12341	
Pseudo R^2	0.069		0.068		0.066	

This table reports the effect of the interaction between CSR and tax avoidance on firm's credit rating for high versus low tax-avoiding firms. The dependent variable, $\Delta S\&PRating_{t+1}$, is the change in S&P firm's credit rating from year t to year *t-1*, where $Rating_{it}$ is firm i's Standard & Poor's credit rating in year *t*. Credit ratings are reported as D (payment default) to AAA (extremely strong capacity to meet financial commitments) and are converted into numerical values from 1(D) to 22 (AAA). *CSR_Index* is total strengths minus total weaknesses in the MSCI ESG five social rating categories: community, diversity, employee relations, environment, and product; *GAAP_ETR* is a dummy variable that takes the value of one for observations in the top quartile of *GAAP_ETR* and zero otherwise. *Cash_ETR* is a dummy variable that takes the value of one for observations in the top quartile of *Cash_ETR* and zero otherwise. *BTD* is a dummy variable that takes the value of one for observations in the top quartile of *BTD* and zero otherwise. In all three columns, the dependent variable, $\Delta S\&PRating_{t+1}$, is change in firm's Standard & Poor credit rating from year *t* to year *t+1*. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 12

Panel A: Regression analyses examining the effect of the trade-off between CSR and tax avoidance on bond spreads

	(1)		(2)		(3)	
	Spread$_{t+1}$		***Spread$_{t+1}$***		***Spread$_{t+1}$***	
Constant	2.531***	(18.08)	2.577***	(20.63)	2.729***	(21.20)
CSR2_Index	-0.032***	(-4.01)	-0.030***	(-3.85)	-0.035***	(-3.91)
GAAP_ETR	0.333	(1.13)				
*CSR2_Index * GAAP_ETR*	-0.190***	(-2.73)				
Cash_ETR			0.129	(0.52)		
*CSR2_Index * Cash_ETR*			-0.027	(-0.42)		
BTD					-0.992***	(-2.81)
*CSR2_Index * BTD*					-0.067*	(-1.88)
Size	-0.241***	(-10.11)	-0.246***	(-11.07)	-0.256***	(-10.37)
ROA	-2.902***	(-4.33)	-2.115***	(-3.47)	-2.508***	(-3.63)
CFO	0.158	(0.26)	0.250	(0.44)	0.093	(0.15)
Loss	0.313	(1.36)	0.272	(1.13)	0.285	(1.31)
Leverage	2.399***	(7.00)	2.399***	(7.83)	2.329***	(6.98)
INTCOV	0.030	(0.54)	0.018	(0.35)	-0.037	(-0.66)
CAPITAL	0.146	(0.99)	-0.048	(-0.35)	0.055	(0.38)
SUB	0.277***	(2.75)	0.290***	(3.06)	0.220**	(2.23)
BTM	0.998***	(6.39)	1.187***	(9.45)	0.874***	(6.03)
Return	0.118	(1.44)	0.138*	(1.75)	0.143*	(1.69)
Intang	-0.341***	(-2.75)	-0.462***	(-3.79)	-0.414***	(-3.40)
SG&A	0.216	(1.28)	0.304*	(1.80)	0.393*	(1.94)
R&D	-0.629	(-0.70)	-0.747	(-0.86)	-0.658	(-0.73)
Cash	0.535*	(1.74)	0.163	(0.58)	0.451	(1.46)
Tax_Bnft_Opt	-10.999	(-1.39)	-10.900	(-1.36)	-15.666*	(-1.78)
For_Inc	0.022***	(3.24)	0.024***	(3.88)	0.020***	(3.00)
NOL	0.043	(0.52)	0.024	(0.33)	1.465***	(3.11)
Senior	-0.566***	(-4.07)	-0.560***	(-4.51)	-0.534***	(-4.21)
CreditSensitive	-0.763***	(-5.09)	-0.793***	(-6.06)	-0.830***	(-6.14)
Year Fixed-Effects	Yes		Yes		Yes	
Observations	2786		3057		3051	
Adjusted R^2	0.612		0.612		0.617	

This table reports the effect of the interaction between CSR and tax avoidance on bond spread. The dependent variable, *Spread$_{t+1}$*, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the U.S. Treasury bond yield for similar maturity *CSR2_Index* is total strengths minus total weaknesses in the MSCI ESG seven social rating categories: community, diversity, employee relations, environment, product, human rights, and corporate governance; *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, *Spread$_{t+1}$*, is the yield to maturity at the issuance date for the largest bond that firm *i* issued in year *t+1*, minus the Treasury bond yield with similar maturity. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.

Table 13

Panel B: Regression analyses examining the effect of the trade-off between CSR and tax avoidance on firm's credit rating

	(1)		(2)		(3)	
	$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$		$\Delta S\&PRating_{t+1}$	
CSR2_Index	0.017*	(1.90)	0.021**	(2.47)	0.022***	(2.77)
GAAP_ETR	0.117	(0.50)				
*CSR2_Index * GAAP_ETR*	0.204***	(2.79)				
Cash_ETR			-0.073	(-0.31)		
*CSR2_Index * Cash_ETR*			0.157**	(2.21)		
BTD					0.282*	(1.71)
*CSR2_Index * BTD*					-0.062	(-1.14)
ΔSize	0.869***	(5.34)	0.744***	(4.27)	0.492***	(3.61)
ΔROA	1.803***	(3.41)	1.213***	(2.69)	2.122***	(5.11)
ΔCFO	1.137**	(2.18)	1.287***	(2.65)	1.826***	(4.18)
Loss	-0.788***	(-5.02)	-0.740***	(-4.37)	-0.788***	(-5.98)
ΔLeverage	-1.860***	(-4.56)	-2.019***	(-4.99)	-2.352***	(-6.84)
ΔINTCOV	0.537***	(6.51)	0.566***	(7.12)	0.477***	(6.81)
ΔCapital	-0.085	(-0.31)	0.063	(0.23)	-0.110	(-0.45)
SUB	-0.159*	(-1.88)	-0.170**	(-2.09)	-0.176**	(-2.52)
ΔBTM	-0.930***	(-5.07)	-0.462**	(-2.49)	-0.241*	(-1.78)
ΔIntang	0.029	(0.33)	-0.054	(-0.29)	-0.033	(-0.42)
ΔSG&A	-0.440	(-0.72)	-0.525	(-0.72)	-0.204	(-0.46)
ΔR&D	1.417	(0.95)	0.947	(0.38)	1.385	(1.25)
ΔCash	-0.335	(-1.10)	-0.431	(-1.22)	-0.195	(-0.95)
ΔTax_Bnft_Opt	-13.460	(-1.53)	0.010	(0.00)	-4.048	(-0.52)
ΔFor_Inc	0.001	(0.26)	-0.016	(-0.54)	-0.001	(-0.18)
ΔNOL	0.000	(0.02)	-0.719	(-1.46)	0.005	(0.54)
Return	0.820***	(8.59)	0.914***	(9.73)	0.762***	(8.02)
$S\&PRating_t$	-0.110***	(-12.99)	V	(-12.28)	0.492***	(3.61)
Observations	9314		9905		12341	
Pseudo R^2	0.069		0.068		0.066	

This table reports the effect of the interaction between CSR and tax avoidance on firm's credit rating. The dependent variable, $\Delta S\&PRating_{t+1}$, is the change in S&P firm's credit rating from year t to year *t-1*, where $Rating_{it}$ is firm i's Standard & Poor's credit rating in year *t*. Credit ratings are reported as D (payment default) to AAA (extremely strong capacity to meet financial commitments) and are converted into numerical values from 1(D) to 22 (AAA). *CSR2_Index* is total strengths minus total weaknesses in the MSCI ESG seven social rating categories: community, diversity, employee relations, environment, product, human rights, and corporate governance; *GAAP_ETR* is calculated as five-year sum from year t-4 to year t of income tax expense divided by the sum of the pretax income for the same five-year period. *Cash_ETR* is calculated as five-year sum from year t-4 to year t of cash taxes paid divided by the five-year sum of pretax income (PI) less special items (SPI). *BTD* is calculated as BTD = {PI – [(TXFED + TXFO)/0.35 – TLCF]} / AT_lag. In all three columns, the dependent variable, $\Delta S\&PRating_{t+1}$, is change in firm's Standard & Poor credit rating from year *t* to year *t+1*. All other variables are defined in Appendix A. *t*-statistics are reported in parentheses. *, ** and *** indicate two-tail significance at the 10 percent, 5 percent and 1 percent levels, respectively, based on firm-level clustered standard errors.